



AMMOS-PDS Pipeline Service (APPS)

A Data Archive Pipeline for Mission Operations

Stirling Algermissen, Steve Levoe, Costin Radulescu,
Steve Hughes,

*Jet Propulsion Laboratory, California Institute of
Technology*



Why APPS ?

ISSUES	SOLUTIONS
Early detection of problems in the science product labels (as early as they are generated).	APPS Validation, Reporting <ul style="list-style-type: none"> - Most (“all”) problems can be fixed by the PDS delivery date because they were identified early.
Product SIS not in sync with the PDS4 model.	APPS LDT <ul style="list-style-type: none"> - GUI to enable easy Mission label (dictionary) creation. (no XML experience required) - Eliminates the split between an ops and an archive label.
Manual Archive Volume Generation.	APPS Bundle Service <ul style="list-style-type: none"> - Eliminates the problem of manually creating archive volumes during operations (manual process, very tedious) - Uses BPMN standard to specify and extend (if necessary) the process of creating bundles.
PDS4 Transition arduous.	APPS LDT, Transformation, Validation, Bundle <ul style="list-style-type: none"> - <i>“I am so glad we have a tool like this to helps us understand how to navigate through PDS4.”, Payam Zamani, InSight MIPL SE.</i> - Transform PDS3 to (best-effort) PDS4 constructs to provided a starting point for the label design.
No common platform for PDS Engineers and Mission Engineers to design, exchange, validate and track science products.	APPS Web Console (“webtop”) <ul style="list-style-type: none"> - All tools can be shared and accessed from a single console/desktop (light-weight <via browser>, everyone can use <no UNIX/Linux experience required to use the tools>). - Future tools can be added to the platform. - Single sign-on (CAM) provides secure access & information exchange with minimal user intervention.
Manual spot checks.	Bundle Validation (future) <ul style="list-style-type: none"> - Complete archive bundle data validation against label information will provide a much better and improved archive product.

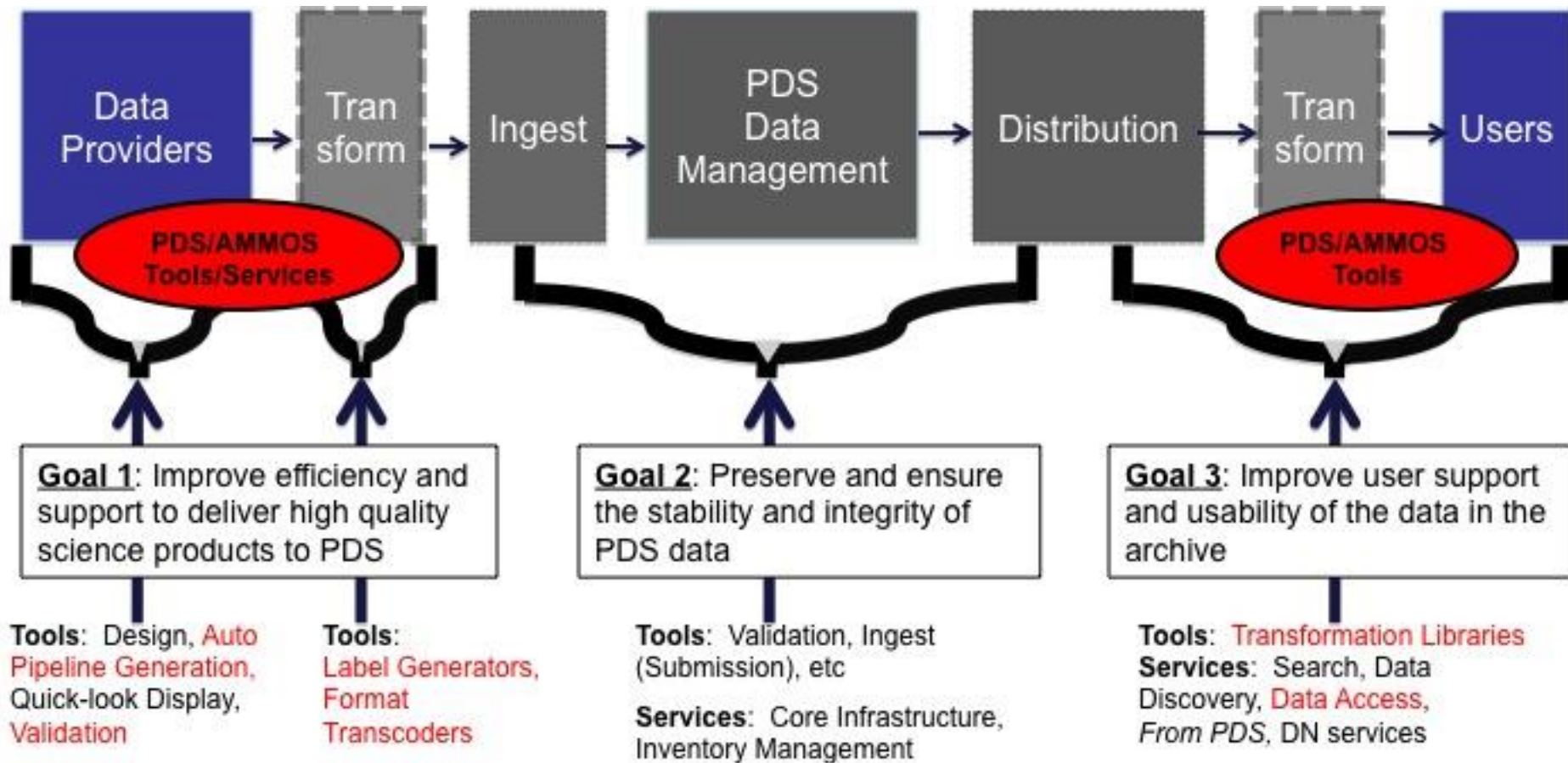


APPS Role

- *Partner with PDS to develop a pipeline service that integrates PDS4 tools and standards, and infuses them into the missions, from concept to product delivery into PDS Archive(s).*
- *Provide missions with an early view into PDS4 compliance level (as the first products are being generated), allowing adequate time for developers and operations personnel to build and provide a fully PDS compliant science product.*

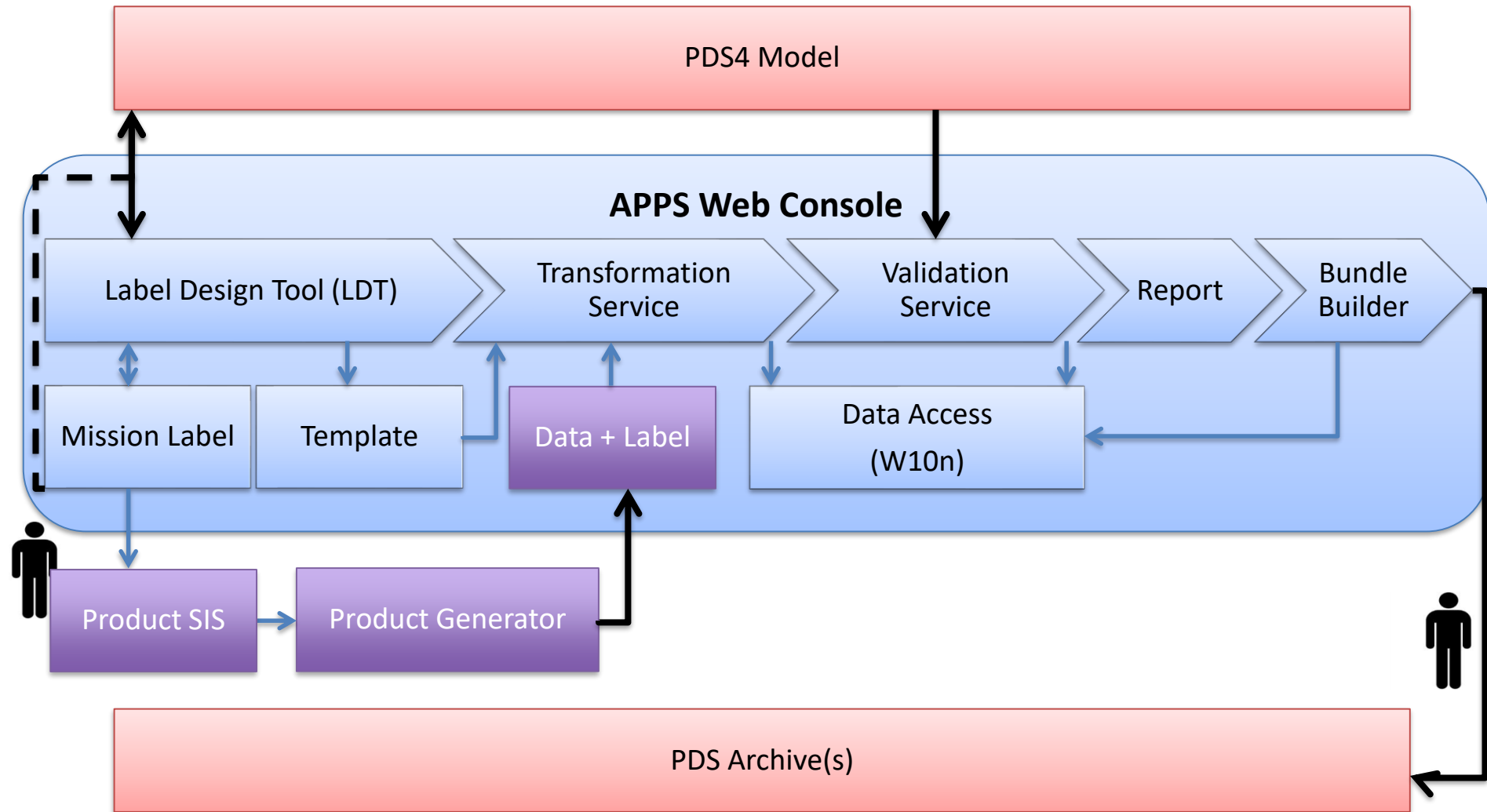


Vision





Today: APPS Pipeline



Legend: APPS Component Mission Component PDS Component



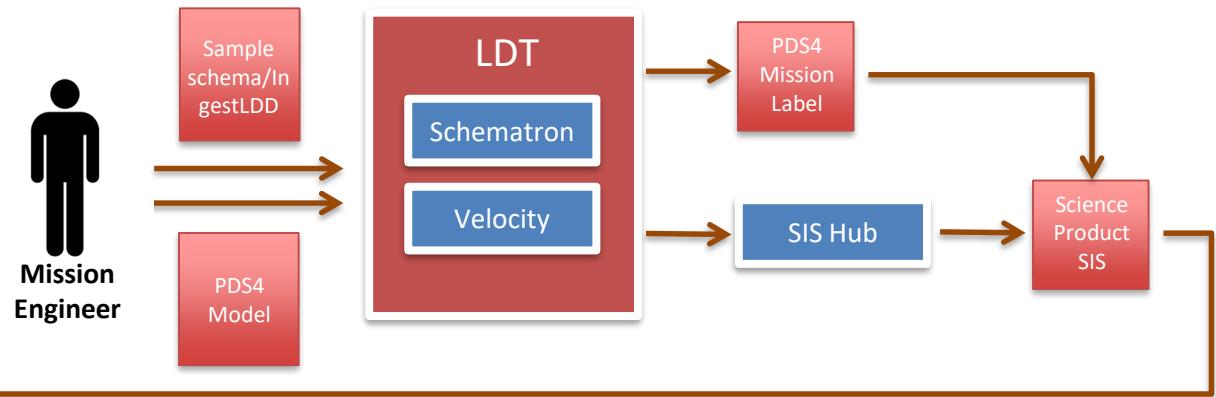
APPS Components Description

- LDT
 - Label Design Tool (using PDS4 Model) (<https://apps-ldt.jpl.nasa.gov>)
- Transformation (transcoder)
 - PDS to PDS to ImageIO and back
 - Using Velocity templates (commonly used PDS4 practice)
- Validation (using PDS vTool)
 - Generate both XML and JSON reports
- Reporting (various queries to the APPS database)
 - JSON reports
- Bundle Builder
 - Using Business Process Model Notation (BPMN 2.0) Standard process definitions.
- Web Console

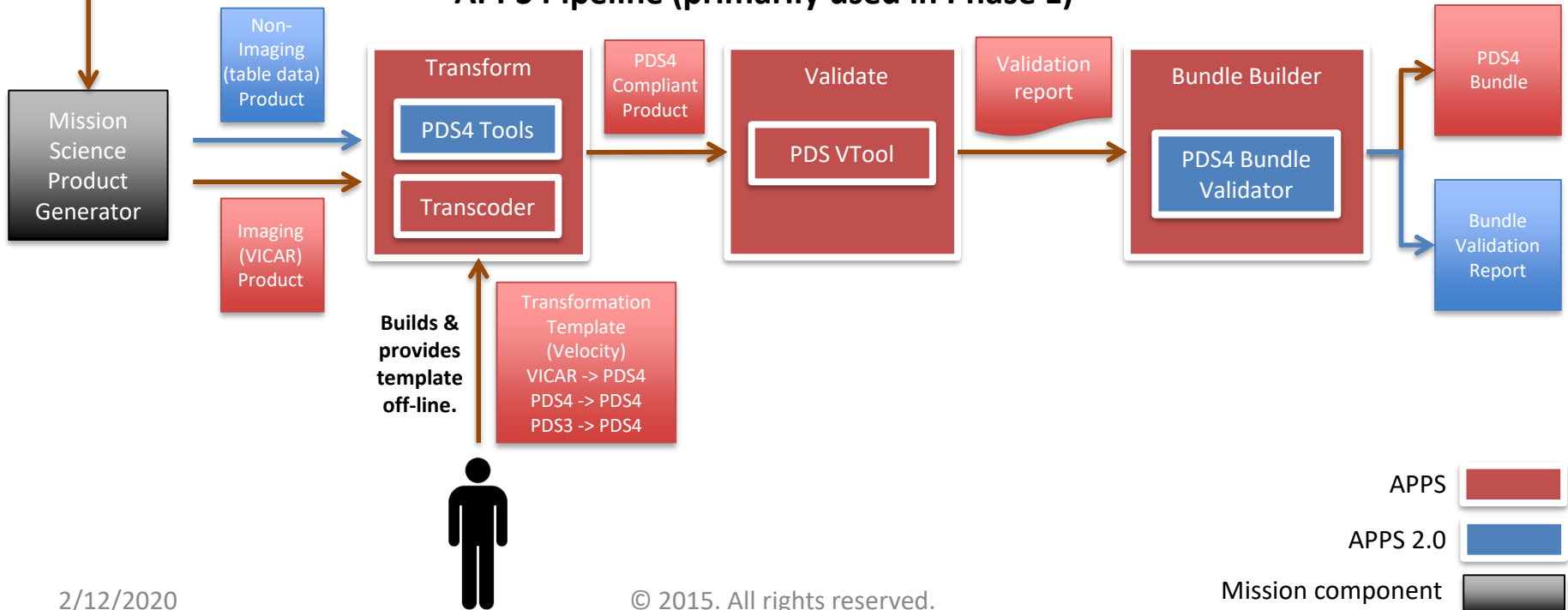


Overview

APPS LDT (primarily used in Phase C and/or D)

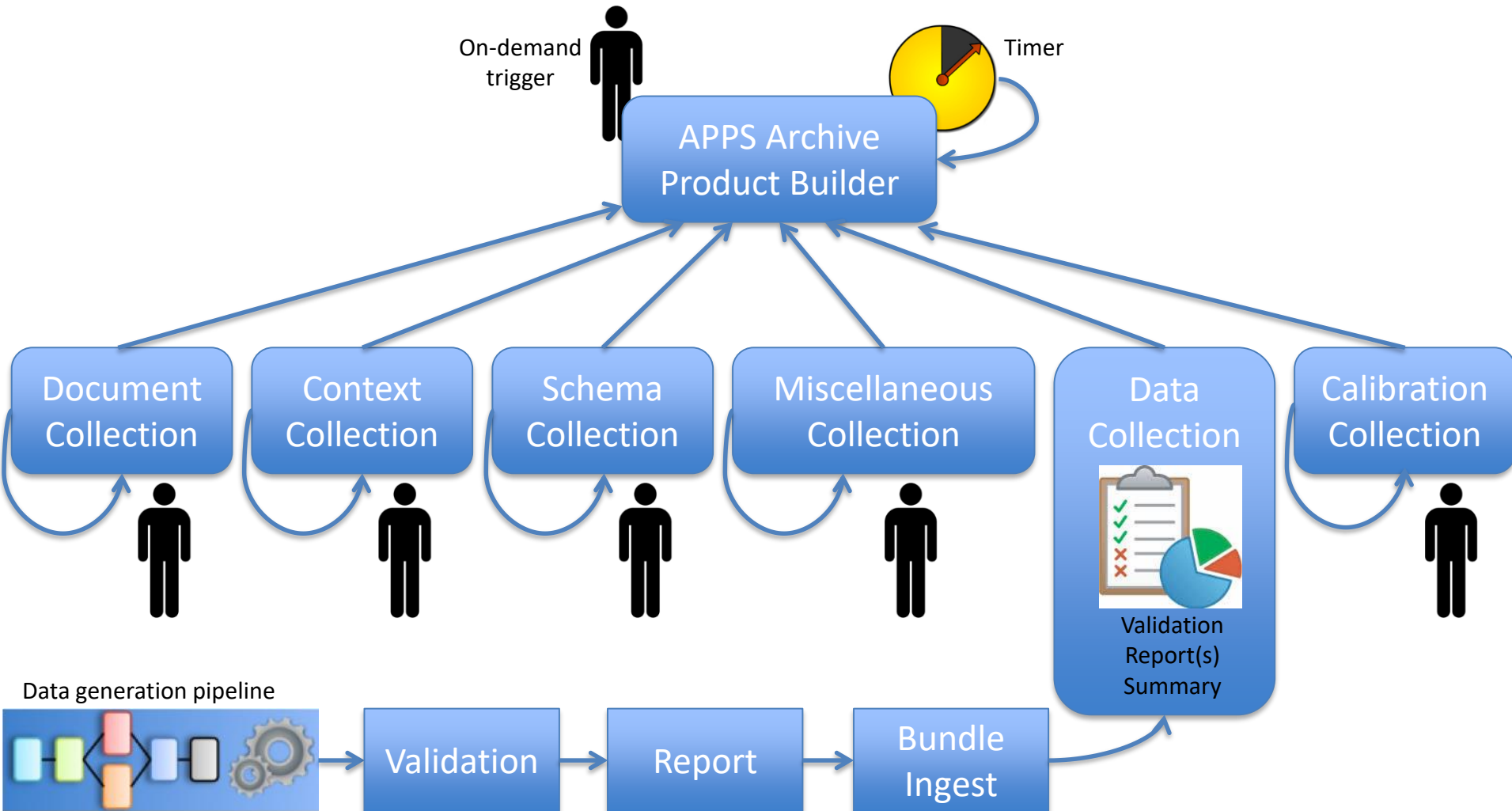


APPS Pipeline (primarily used in Phase E)



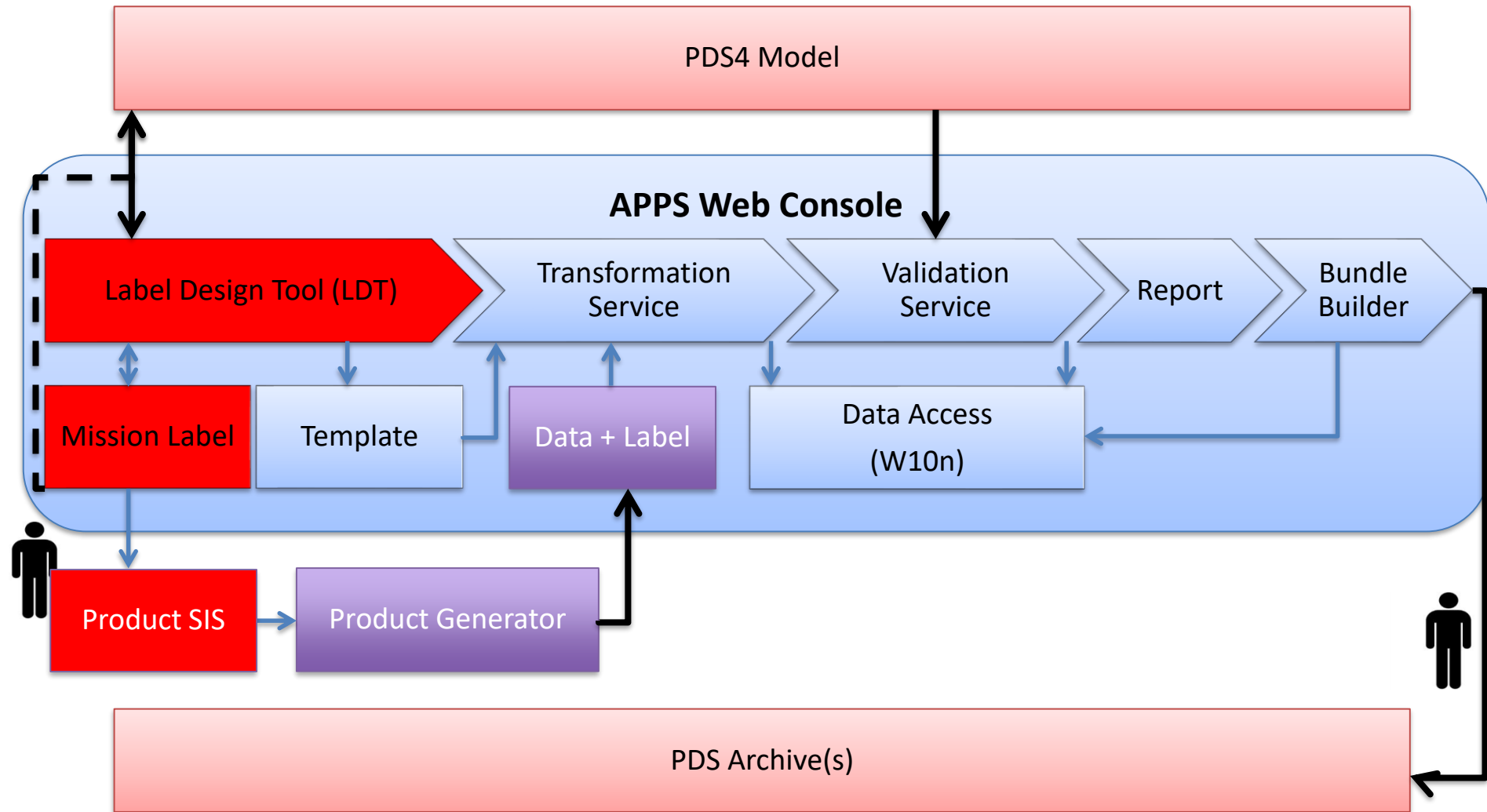


APPS PDS4 Bundle Builder view



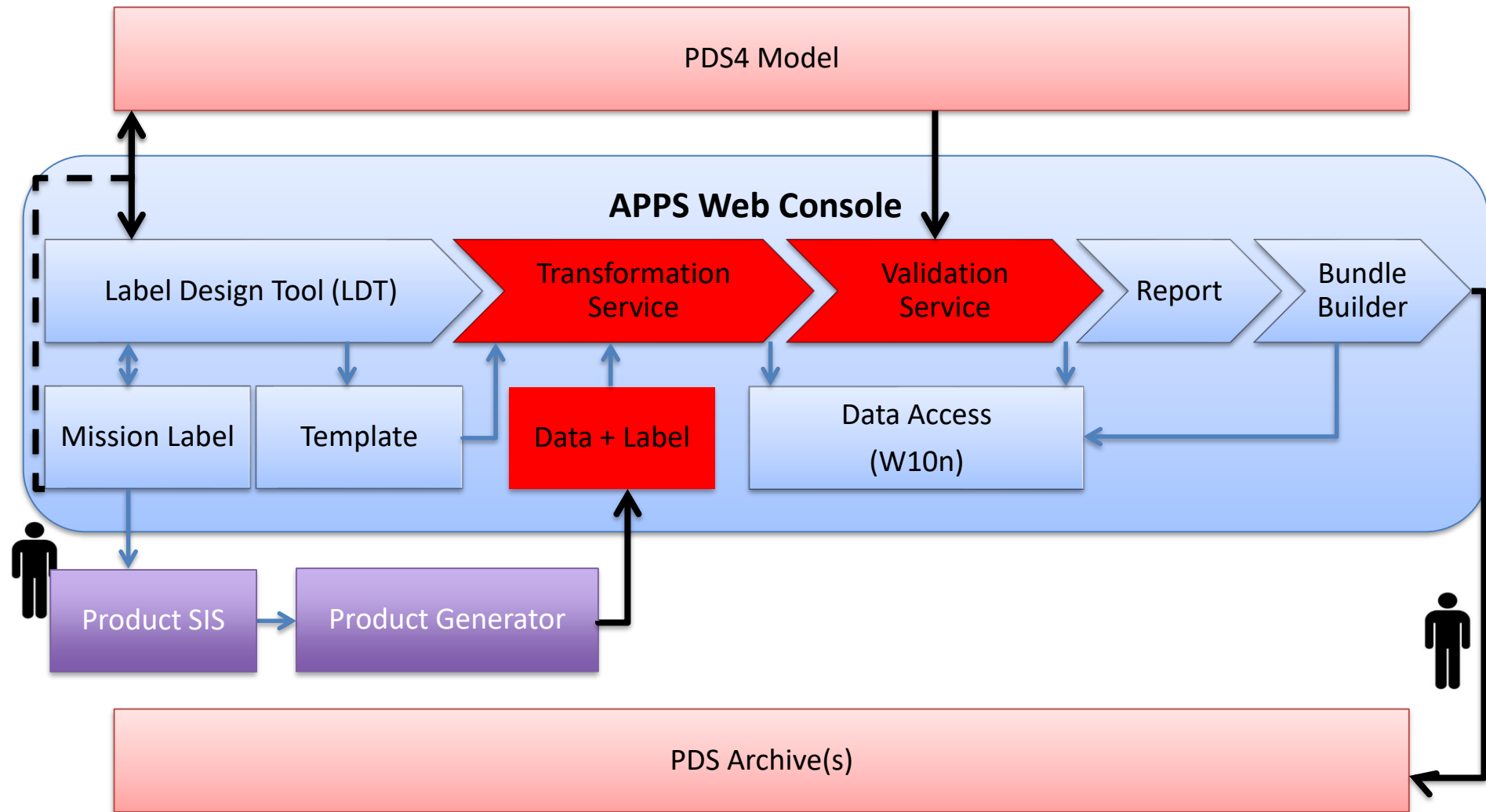


APPS Pipeline Demo



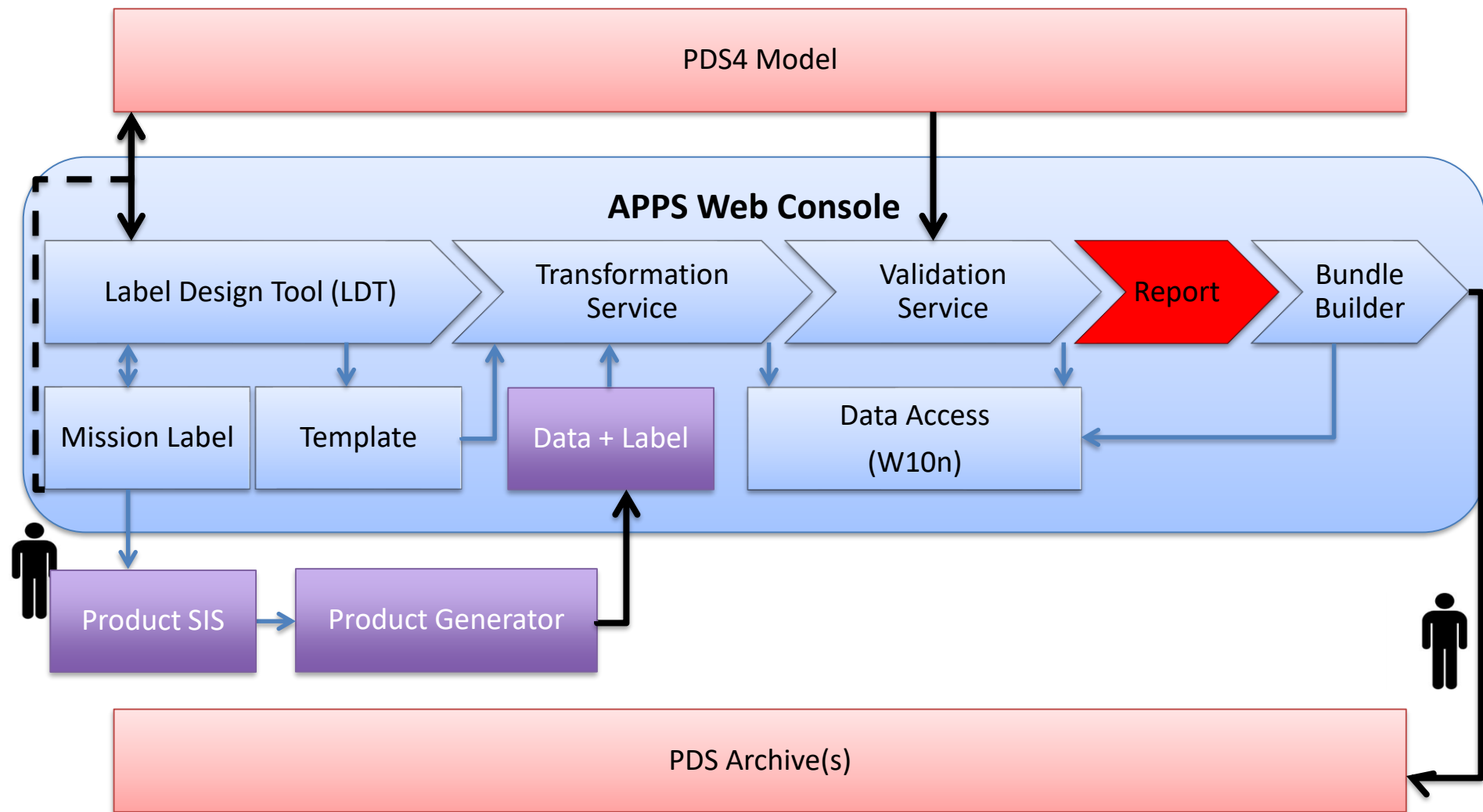


APPS Pipeline Demo



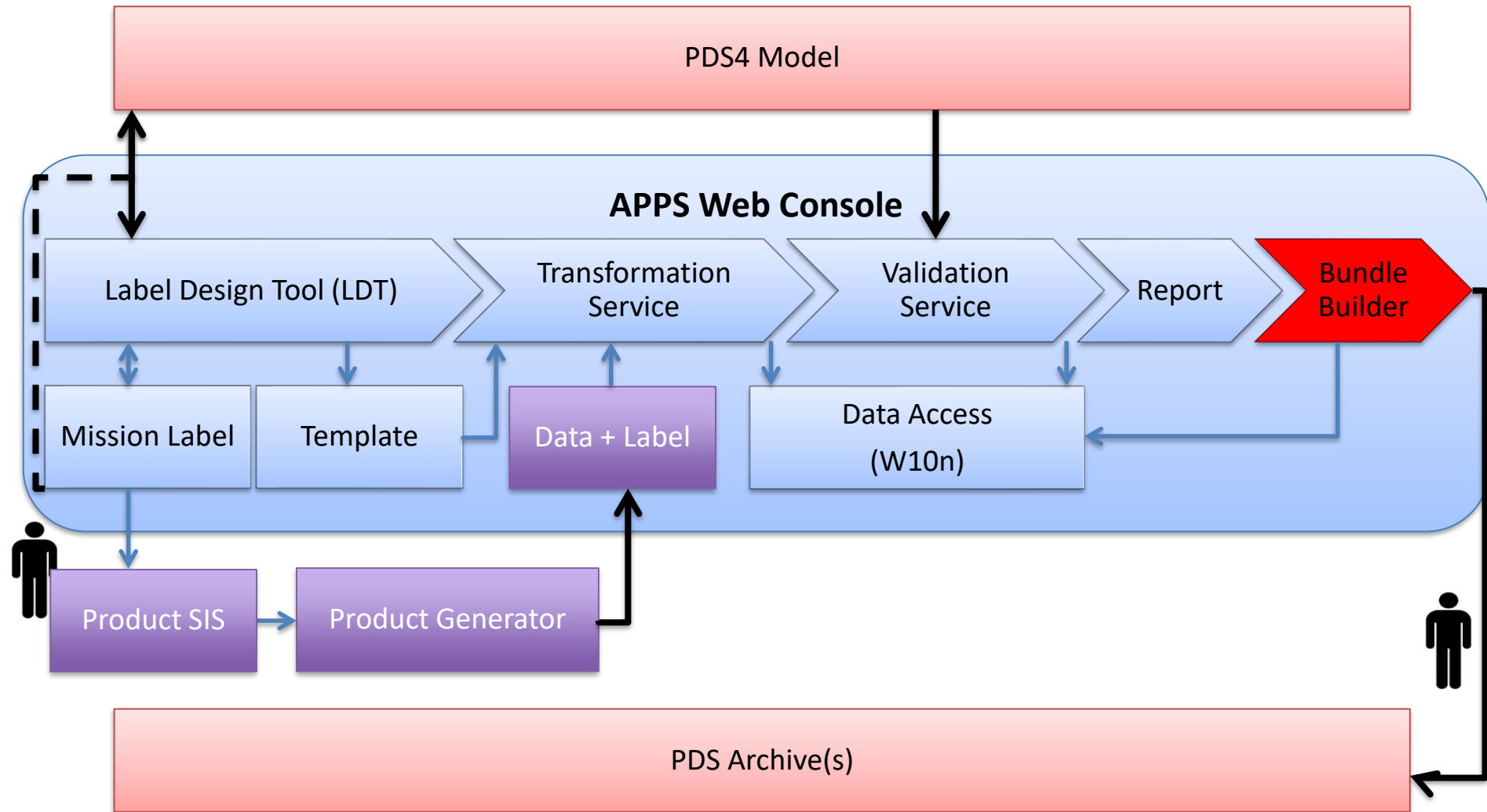


APPS Pipeline Demo





APPS Pipeline Demo





Contacts

- APPS CE: Stirling Algermissen
- IDS AEM: Costin Radulescu
- IDS SE: Adrian Tinio
- MGSS MIO: Eleanor Basilio